

Spiral wave unpinning facilitated by wave emitting sites in cardiac monolayers

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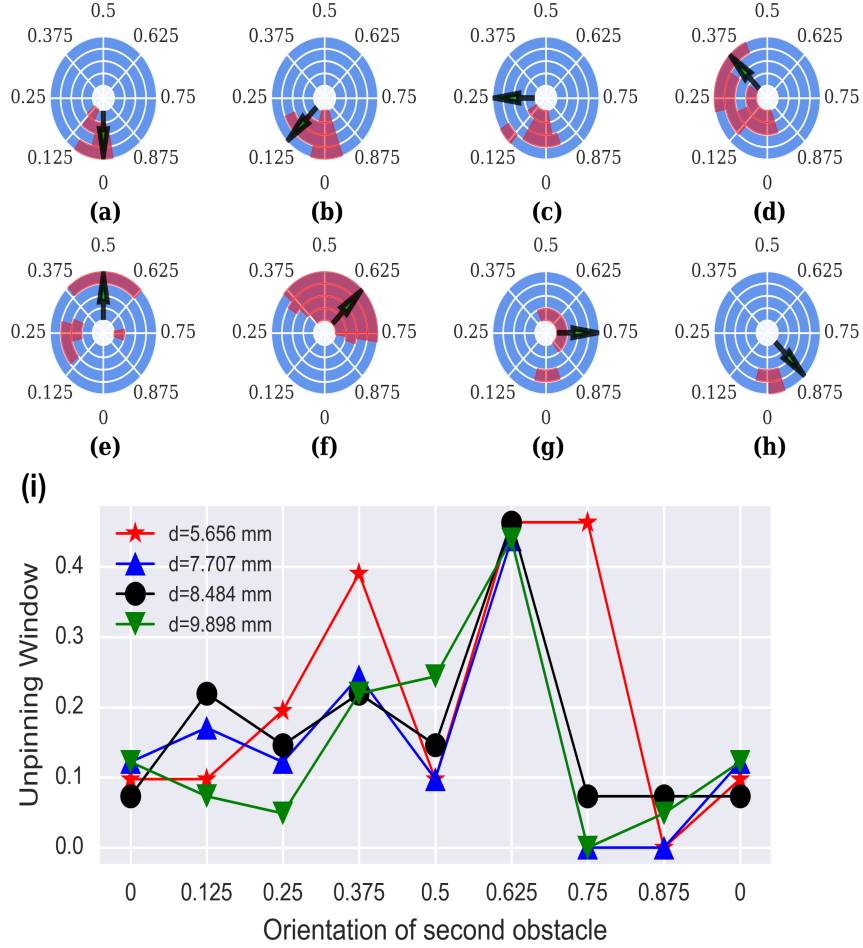


Figure 1: **Unpinning window for different orientation of additional wave emitting site around the central heterogeneity:** The shaded circular region at the center of the figure represents the obstacle. The arrow indicates the angle at which the second obstacle is located. By keeping the radius of both the obstacle fixed we change the distance of the second obstacle from the first. Each white concentric circle denotes the distance of the second obstacle from the central obstacle. The red shaded region corresponds to the unpinning window for a fixed distance between the two obstacles. Figures (a)-(h) represents unpinning window of 8 different orientation of the additional wave emitting site having a radius of 1.5 mm around the central heterogeneity. The distances between the first and second obstacles are fixed to 5.656 mm, 7.707 mm, 8.484 mm and 9.898 mm respectively. (i) Plot of orientation of the second obstacle *vs* the unpinning window for different distances between the obstacles.

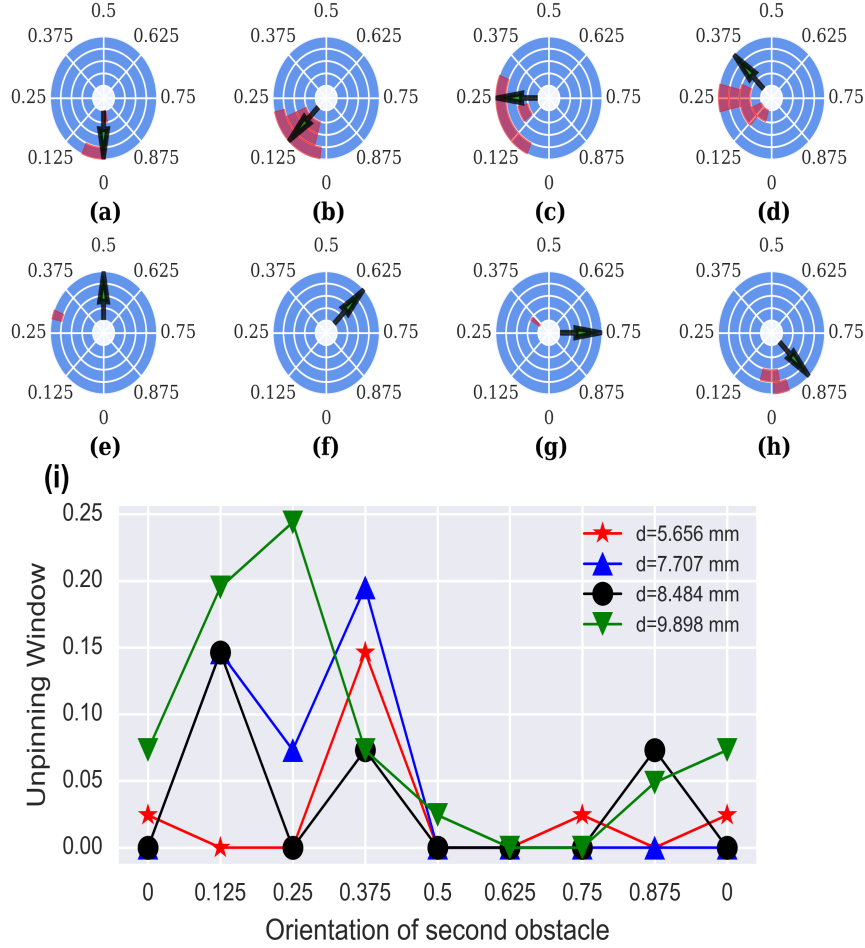


Figure 2: **Unpinning window for different orientation of additional wave emitting site around the central heterogeneity:** The shaded circular region at the center of the figure represents the obstacle. The arrow indicates the angle at which the second obstacle is located. By keeping the radius of both the obstacle fixed we change the distance of the second obstacle from the first. Each white concentric circle denotes the distance of the second obstacle from the central obstacle. The red shaded region corresponds to the unpinning window for a fixed distance between the two obstacles. Figures (a)-(h) represents unpinning window of 8 different orientation of the additional wave emitting site having a radius of 2.5 mm around the central heterogeneity. The distances between the first and second obstacles are fixed to 5.656 mm, 7.707 mm, 8.484 mm and 9.898 mm respectively. (i) Plot of orientation of the second obstacle *vs* the unpinning window for different distances between the obstacles.